INSECT DISEASE REPORT

USDA FOREST SERVICE/NORTHERN REGION

Report No. I-72-7

5230
October 1972

OBSERVATIONS ON THE DECLINE OF WESTERN LARCH DEFOLIATED BY LARCH CASEBEARER IN THE NORTHERN REGION

by

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INTRODUCTION

Numerous stands of western larch, *Larix occidentalis*, on the St. Joe, Coeur d'Alene, and Kaniksu National Forests, Idaho, show signs of gradual deterioration following repeated defoliation by larch casebearer, *Coleophora laricella* Hbn. (Tunnock et al. 1969). Stand deterioration can occur after 4 years of continued heavy defoliation. The main symptom is epicormic branching. Upon examination, many of these dead and dying larch have been infested by the western larch borer, *Tetropium velutinum* LeConte, or infected by root rotting fungi.

The objective of this study was to determine if larch severely weakened by larch casebearer feeding would die if they were not attacked by borers or root rots.

METHODS

Six areas (Fig. 1) containing western larch with epicormic branching caused by casebearer feeding were established in northern Idaho. The number of trees selected for observation in each area varied from 10 to 23 trees. This was due to numbers of larch with epicormic branching varying from plot to plot. Sample trees had epicormic branchlets along the stem; very little crown foliage; no evidence of root rot, borers, or other defoliators; or physical damage (wounds). They were dominant and codominant trees, ranging from 3 to 10 inches in diameter and 20 to 65 feet in height. Plots were established during May 1969 and examined annually through May 1972 for tree mortality. Each tree that died was checked for root rot and wood borers.

RESULTS AND DISCUSSION

Table 1 summarizes the results of this 4-year study. There were 88 larch trees sampled in tne six areas. Fourteen of these trees died. Seven of them died without being attacked by root rot or beetles. Six dead trees contained wood borers, and one had both root rot and bark beetles.

The results of this study show that larch suffering heavy casebearer defoliation for three or more consecutive years can die without the aid of root rots or beetles. This indicates the larch casebearer can be a primary tree killer. Wood borers, bark beetles, and rots seem to be secondary killers of weakened larch.

LITERATURE CITED

Tunnock, S., R. E. Denton, C. E. Carlson, and W. W. Janssen, 1969. Larch casebearer and other factors involved with deterioration of western larch stands in Northern Idaho. U. S. Department of Agriculture, Forest Service, Research Paper INT-68.

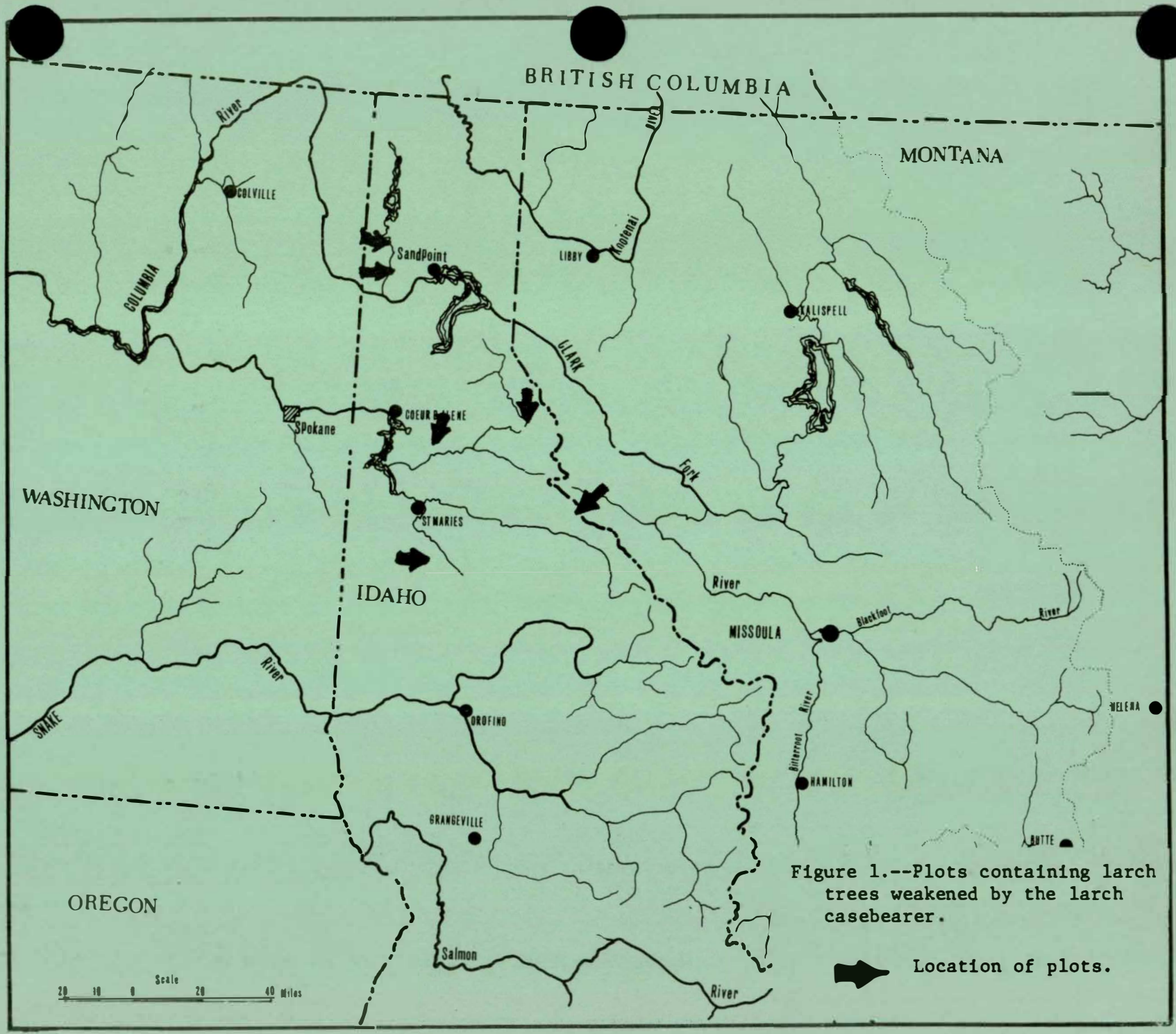

Figure 1.--Plots containing larch trees weakened by the larch casebearer.

Location of plots.

Table 1.--Observations from 1969 through 1972 of western larch trees severely weakened by larch casebearer feeding.

Plot No.	Number trees examined	Number live trees in 1972	Number dead trees with no beetles or rots	Number dead trees with wood borers	Number dead trees with root rot
1	10	7	1	1	1*
2	13	13			
3	10	7		3	
4	22	19	2	1	
5	23	18	4	1	
6	10	10			
TOTALS	88	74	7	6	1

* This dead tree contained root rot and bark beetles.